

Booster Multipole Corrector

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Magnet specification with 0.2 m effective length are shown in the Table 1.

Table 1

Type	Integrated field/gradient	Aperture field/gradient	Field at 1" radius	Max slew rate
Horizontal dipole	0.009 T-m	0.045 T	0.045 T	0.5 T-m/s
Vertical dipole	0.015 T-m	0.075 T	0.075 T	0.8 T-m/s
Normal quadrupole	0.08 T	0.4 T/m	0.01016 T	160 T/s
Skew quadrupole	0.008 T	0.04 T/m	0.001016 T	0.8 T/s
Normal sextupole	1.41 T/m	7.05 T/m ²	0.00455 T	2800T/m/s
Skew sextupole	1.41 T/m	7.05 T/m ²	0.00455 T	2800T/m/s

Calculated values at 200 A peak current (100A RMS), 0.185 m (7.3") core length. Pole tip diameter 5.465" (0.139 m) . For the dipole effective length is ~ 0.185 +0.139 = 0.324 m.

Table 2

Type	Integrate d field / gradient	Aperture field / gradient	Eff. length, m	Peak current, A	Nominal Current, A	Inductance, uH	Max inductive voltage, V
Horizontal dipole	0.0175 T-m	0.054 T	0.324	200	103	490	6
Vertical dipole	0.0175 T-m	0.054 T	0.324	200	172	490	6
Normal quadrupole	0.094 T	0.375 T/m	0.25	200	170	69	28
Skew quadrupole	0.0275 T	0.11 T/m	0.25	200	58	4	0.1
Normal sextupole	1.48 T/m	7.8 T/m ²	0.19	200	191	110	44
Skew sextupole	1.48 T/m	7.8 T/m ²	0.19	200	191	110	44